

Green Makeover – Retrofitting Sites in Urban Areas to Enrich City Environments



Presentation Abstracts

Note: Abstracts were available for only some of the presenters. Conference presentations will be made available, in their entirety, in the conference proceedings.

October 19, 2005

Morning Breakout Session – Case Studies of Green Retrofit

Eco-Industrial Development in the Calumet Region: The Ford-Calumet Manufacturing Campus

Suzanne will impart some lessons learned from the green retrofit of the Chicago Manufacturing Campus located in the Calumet area of Chicago. It enables energy-saving and emission reducing, and just-in-time manufacturing of parts for the nearby Ford auto plant. The Campus won two 2004 Phoenix Awards for excellence in brownfield redevelopment.

Suzanne Malec, Deputy Commissioner, Chicago Department of the Environment

Commercial Case Study: Revitalizing Urban Properties for Community Benefits

This session will present a case study on an urban lot's transformation from grocery store to charter school. It will feature the story of a school-led effort to decrease the amount of storm water runoff and increase the beauty of their site. Two other green space sites, with past commercial uses, will also be discussed.

Megan Dobratz, Minnesota Environmental Initiative

Afternoon Breakout Session – Green Reuse Planning Principles

Making Green: A "How-to" Guide from a Milwaukee Urban Neighborhood

The Fond du Lac and North Avenue community is home to a pioneering green retrofit initiative. Project planners envision an interconnected web of parks, streetscapes, and plazas winding through new and existing residential and commercial developments. Today, however, the area is characterized by diminished air, water, and soil quality; uninviting and un-educational schoolyards; harsh streetscapes; city-owned, vacant tax-delinquent property (16% of the total land area); and a county park that received the lowest standardized test scores in the system when measuring both the existence of park amenities and their quality. This session explores core values and planning strategies necessary for science-based environmental planning; the anticipated environmental, social, and economic benefits of establishing and maintaining quality green

infrastructure; the process for shaping policies and vision that challenge the status quo; and tools for strengthening social capital and invigorating a sense of citizenship and community pride.

Tony Gibson, Johnson's Park Neighborhood

Heather Mann, Urban Open Space Foundation

Sally Peltz, Legacy Redevelopment Corporation

Concurrent Breakout Sessions

Panel 1: Addressing Air Quality Issues through Green Retrofit

Air Pollution Control–The Tree Factor

Millions of us live in areas where air pollution can cause serious health problems. Ground-level ozone and airborne particles are two pollutants that pose the greatest threat to human health. And carbon dioxide (CO₂), once thought to be the product of perfect combustion, is now considered a pollution concern. What role do trees play in cleaning the air and making our communities healthier places to live? Jim's talk will explore what air pollution is, why it is unhealthy, and how trees can play a bigger role as air pollution control devices.

Jim Geiger, Center for Urban Forest Research, University of California–Davis

Panel 2: Addressing Water Quality Issues through Green Retrofit

Economic Aspects of Retrofitting Urban Residential Areas for Storm Water Runoff Management

The effects of storm water runoff on stream ecosystems are exacerbated by urbanization and the coincident increase in impervious surface in a watershed. Proliferation of impervious surface creates higher peak flows that cause stream alteration and habitat degradation; it leads to reduced stream base flow, and in some areas results in toxic loading. Phase Two of the US Environmental Protection Agency's National Pollution Discharge Elimination System (NPDES) storm water regulations requires communities smaller than 100,000 residents to meet new criteria for storm water runoff reduction. In many cases these smaller communities have no established storm water utility, and are investigating alternatives for complying with these new, sometimes expensive requirements. We hypothesize that it might be cost effective for some communities to encourage homeowners to control storm water runoff at the parcel level instead of, or in conjunction with large, infrastructural best management practices (BMP). In the context of our research in a pilot project area in Cincinnati, OH, we look at some market mechanisms that might be used by such communities to create incentives for homeowners to install runoff-reducing BMPs. I will discuss how we have investigated variously the use of tradable allowances, a fee-with-rebate program and an auction mechanism. I will explain how our research has progressed from the investigation of a strictly theoretical model to focusing on practical application, and I'll provide a brief overview of some projects elsewhere attempting to use market mechanisms to reduce storm water runoff.

Hale W. Thurston, Economist, U.S. EPA, Office of Research and Development

Retrofitting: Urban Natural Drainage and Site Design Strategies in the Puget Sound Basin

Integrating urban drainage into built urban sites involves the coordination of many stakeholders in order to provide both a functional and educational drainage approach. Stakeholders include public agencies, owners, neighbors, and various design disciplines.

Seattle's pilot Street Edge Alternatives Project (SEA Streets) is designed to provide drainage that more closely mimics the natural landscape prior to development than traditional piped systems. To accomplish this, impervious surfaces were reduced to 11% less than a traditional street, provided surface detention in swales, and added over 100 evergreen trees and 1,100 shrubs. Two years of monitoring show that SEA Streets has reduced the total volume of storm water leaving the street by 98% for a 2-year storm event.

The Seattle Housing Authority is constructing a 120-acre mixed-income housing development consisting of 1,600 units. The High Point development includes a street grid with utilities, sidewalks, and trees. A natural drainage system, one of the first of this scale in a new urban subdivision in the United States, will be integrated into the street grid, creating a network of connected vegetated and grass-lined swales. This approach achieves balance between neighborhood green space, pedestrian safety, and water quality improvements. Most importantly, the High Point model challenges beliefs that dense urban design and ecological performance are mutually exclusive.

Peg Staeheli, SvR Design Company

Panel 3: Bringing Nature into the City

Incorporating Native Plants into Manmade Landscapes

Regionalism is a design principle which influences the decision making of many landscape architects when they begin the design process. Native landscapes and plant communities, along with the natural forces that shape them, provide artistic inspiration and ecological models for manmade landscapes. The study and interpretation of natural landscapes by landscape architects has been practiced in the U.S. since the 1800's and continues today. This presentation will take a brief look at the history of the use of native plants in manmade landscapes in America and will include examples of contemporary residential, corporate, and park/forest preserve projects.

Steve McCarthy, Milwaukee Metropolitan Sewerage District

Panel 4: Improving Urban Habitat through Green Retrofit

Bringing Wildlife Back into Backyards

Thousands of property owners around the country are welcoming wildlife into their backyards, school sites, workplaces, and communities. From small inner city balconies to larger tracts of undeveloped land, people have learned ways to provide the basics for wildlife. The National Wildlife Federation is helping guide urban residents as they transform ordinary backyards into certified Backyard Wildlife Habitat sites. This session will provide an overview of this green retrofitting program, with an emphasis on

its Community Wildlife Habitat projects. We will also discuss some common “nuisance” wildlife concerns and outline the basics steps to developing an urban wildlife plan.

Dreux J. Watermolen, Bureau of Integrated Science Services, Wisconsin
Department of Natural Resources

Panel 5: Addressing Storm Water through Green Retrofit

Quantifying Environmental Improvement from BMP Retrofits

With urban sprawl, a greater number and proportion of watersheds are affected by concrete, buildings, and other impervious surfaces which impede the rapid infiltration of precipitation. These changes to the natural patterns of runoff have resulted in increased risk to human health and safety, and hydrological, geomorphic, and ecological impairment of receiving stream ecosystems. A substantial amount of research has demonstrated that total impervious area (TIA) affects stream communities nonlinearly; stream conditions decline faster above a threshold of ~10–15% TIA in a watershed. However, very little research has been conducted to evaluate changes in stream ecosystems after mitigating TIA, either through centralized or decentralized storm water management systems. In theory, decentralized management systems (e.g., retention ponds, grassy swales, porous pavement, etc.) which infiltrate runoff at the sources should be more effective than centralized systems at providing adequate baseflows and moderating flashy stormflows, resulting in healthier aquatic ecosystems. This talk will review the state of knowledge regarding the effectiveness of BMPs (i.e., decentralized storm water management systems) in urbanized watersheds, both implemented individually and at the watershed scale. An active pilot study in Cincinnati, Ohio, testing a multidisciplinary adaptive management approach to urban storm water management, will be used as an in-depth example of the data required to make efficiency assessments of storm water retrofit BMPs. Initial baseline monitoring has demonstrated considerable degradation of stream conditions and biodiversity from what would be expected in a less urbanized watershed. The project will measure the effect of installing BMPs throughout a residential area to improve the environmental conditions of these receiving streams.

Audrey Mayer, Ecologist, U.S. Environmental Protection Agency

From Demonstration to Implementation—Municipal Wastewater Program of Canada’s Great Lakes Sustainability Fund

Since 1991, Canada’s Great Lakes Sustainability Fund (GLSF) and its many partners have been developing, demonstrating, and implementing strategies and cleanup actions that contribute to the restoration of impaired beneficial uses in environmentally degraded areas known as Areas of Concern (AOCs). Priorities addressed are contaminated sediment remediation, habitat restoration and control of agricultural non-point source pollution and municipal wastewater pollution.

The municipal wastewater program component of GLSF develops and demonstrates cost-effective approaches and technologies for the control of pollution from sewage, combined sewer overflows and storm water runoff so that AOC municipalities can address Remedial Action Plan (RAP) implementation. These municipalities range from large, fully-developed cities such as Toronto to smaller municipalities situated along the shorelines of the Great Lakes. Issues of eutrophication, beach closures, and degraded

fish and wildlife communities are some of the impaired beneficial caused by municipal wastewaters and being addressed under the RAP.

In this presentation, case studies drawn from the GLSF program will be used to illustrate progress in applying results from demonstration projects dealing with storm water runoff and combined sewer overflow towards implementing RAP recommendations. The role of partners from the AOC community (all levels of government, conservation authorities, academia, non-government organization, the media and the public at large) in implementing these RAP recommendations will also be presented.

Sandra Kok, Senior Program Engineer, Great Lakes Sustainability Fund,
Environment Canada

Panel 6: Creating a Better Human Environment through Green Retrofit

Creating a Better Human Environment: A New Urbanist Perspective

New Urbanist development can effectively incorporate principles of smart growth and sustainable design, creating an improved human environment that enhances and embraces natural features. This session explores an integrated approach for addressing the goals of green design and New Urbanism. Techniques for green urbanism and case studies will be presented.

Carolee Kokola, Farr Associates

Human Health Implications–Active Living Considerations in Planning Retrofit

This presentation will examine recent research on how green environments can contribute to people's physical and psychological health and discuss how this information can be used in planning and designing green retrofit.

Paul H. Gobster, Research Social Scientist, U.S. Forest Service

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Panel 7: Public Perceptions and Benefits of Green Retrofits

Designing Green Retrofits for Market Values and Public Acceptance

While green retrofits are intended to deliver environmental benefits, these benefits may not consistently translate into public appreciation for their urban landscape character, and may not always be reflected in long term market values. This presentation will draw on Nassauer's research and designed work to suggest approaches to ecological design that help to assure that retrofits that have environmental benefits are recognized as attractive places with lasting increased market values.

Joan Iverson Nassauer, School of Natural Resources and Environment,
University of Michigan

Panel 9: Overcoming Barriers to Green Retrofits

Social and Institutional Barriers to Storm Water Infiltration

This presentation provides an overview of research on storm water infiltration conducted as part of a larger EPA STAR project. At the time of the study, little research had been conducted on the social and institutional barriers to the adoption of practices that promote the infiltration of storm water. Little attention, for example, had been given to homeowners' views of rain gardens and the retrofitting of such gardens in their yards and communities. Likewise no systematic conversations had been conducted with municipal officials, builders, or developers to discover their views on infiltration practices and the considerations that limit their adoption. This study relied on in-depth interviews and focus groups to examine these and related issues. To anticipate, the results of these conversations suggest that such practices can be adopted if local ordinances can be relaxed, if there are adjacent sensitive areas (wetlands, environmental corridors), if developers have access to basic information, and if such information can be brought to their attention early in the planning process.

Edward Nelson, Bureau of Integrated Science Services, Wisconsin Department of Natural Resources